CLAIMS

1. A laser gyro comprising at least one optical ring cavity (1) consisting of at least three mirrors (11, 12, 13), a solid-state amplifying medium (19) and a feedback system (4, 42, 43), the cavity (1) and the amplifying medium (19) being such that two counterpropagating optical modes (5, 6) can propagate in opposite directions one with respect to the other inside said optical cavity, the feedback system allowing the intensity of the two counterpropagating modes to be kept almost the same, the feedback system comprising at least, inside the cavity, an optical assembly consisting of a polarizing element (71) and a device (8) exhibiting a nonreciprocal effect that acts on the polarization state of the counterpropagating modes, characterized in that said optical assembly also includes a device (7) exhibiting a reciprocal effect that also acts on the polarization state of the counterpropagating modes, the feedback system comprising control means for controlling at least one of the effects of said devices (7) or (8).

2. The laser gyro as claimed in claim 1, characterized in that the polarizing element (71) is a linear polarizer.

3. The laser gyro as claimed in claim 1, characterized in that the polarizing element (71) is at least one of the mirrors (11, 12, 13) of the cavity.

4. The laser gyro as claimed in claim 1, characterized in that the polarizing element (71) is at least either an inclined glass plate, the angle of inclination on the optical modes (5, 6) then being approximately equal to the Brewster angle, or one of the faces of an element of the cavity (7, 8 or 19) cut at the Brewster angle of incidence.

5. The laser gyro as claimed in one of claims 1 to 4, characterized in that, when the device (7) exhibiting a reciprocal effect is a second linear polarizer, the polarization direction of which is not parallel to that of the first polarizer, the feedback system consists of means for adjusting the nonreciprocal effect of the device (8) exhibiting a nonreciprocal effect.

6. The laser gyro as claimed in one of claims 1 to 4, characterized in that, when the device (7) exhibiting a reciprocal effect is a birefrigent optical plate, the feedback system comprises means for adjusting the nonreciprocal effect of the device (8) exhibiting a nonreciprocal effect.

7. The laser gyro as claimed in one of claims 1 to 4, characterized in that, when the optical cavity is a nonplanar cavity, the feedback system consists of means for adjusting the nonreciprocal effect of the device (8) exhibiting a nonreciprocal effect.

8. The laser gyro as claimed in one of claims 1 to 4, characterized in that the device (7) exhibiting a reciprocal effect is an optical plate exhibiting electrically controlled birefringence.

9. The laser gyro as claimed in one of claims 1 to 4, characterized in that, when the device (8) exhibiting a nonreciprocal effect consists of a material exhibiting the Faraday effect and polarized by a permanent magnet, the feedback system consists of means for adjusting the reciprocal effect of the device (7) exhibiting a reciprocal effect.

10. The laser gyro as claimed in one of claims 1 to 4, characterized in that the device (8) exhibiting a nonreciprocal effect consists of a material exhibiting the Faraday effect and polarized by an induction coil (73) controlled by an adjustable electrical current.

11. The laser gyro as claimed in claims 9 or 10, characterized in that the amplifying medium and the material exhibiting the Faraday effect are produced in the same material.

12. The laser gyro as claimed in one of the preceding claims, characterized in that the cavity (1) is monolithic, the counterpropagating optical modes (5, 6) propagating, inside the cavity, only in a solid material.

13. The laser gyro as claimed in one of the preceding claims, characterized in that the amplifying medium (19) is based on neodymium-doped YAG (yttrium - aluminum - garnet).

14. The laser gyro as claimed in one of the preceding claims, characterized in that the cavity (1) is optically pumped by at least one diode laser (2).

15. The laser gyro as claimed in one of claims 1 to 11, characterized in that the cavity comprises at least one optical fiber (100) in the form of a ring, which includes optical couplers (101) for the entry and exit of the counterpropagating beams and of at least one optical pumping beam (102).